

acteristics of partial linear equations of the first order in two variables.—T. de **Donder**: The theorem of independence of Hilbert.—L. **Crussard**: The propagation and alteration of waves of shock.—Alexandre **Sée**: A new principle of longitudinal stability of aëroplanes.—Albert **Turpain**: The recording of time signals and Hertzian telegrams with the aid of a Morse apparatus. A detailed description of two types of galvanometer used, in conjunction with a system of relays, in working recording apparatus.—V. **Crémieu**: The effects of flexion at the points of attachment of the wire of a torsion balance. A continuation of a previous paper on the same subject, with suggested applications to seismographs, dynamometers, and microbalances.—E. **Briner** and A. **Kühne**: The transformation undergone by heated calcium carbide. When calcium carbide is heated in a closed vessel at 800° to 1000° C. the only transformation it undergoes is a decomposition into its elements. There is no evidence in support of the view that a subcarbide is formed.—E. **Fouard**: Differential tonometry of solutions and the theory of Arrhenius. The results with sugar are not in accord with the current theories of solution.—H. **Colin** and A. **Sénéchal**: The oxidation of complex cobalto-organic compounds. A study of the velocity of oxidation by air of an alkaline cobalto-glycerol solution.—Marc **Bridel**: The presence of gentiopicrin, gentianose, and saccharose in the fresh roots of *Gentiana punctata*.—R. **Dalimier**: The actions of the arseno-aromatic compounds (606 and neo-salvarsan) on the hæmoglobin of the blood. Dioxydiamido-arseno-benzene ("606") is without action of the hæmoglobin of the blood either *in vitro* or *in vivo*. Neo-salvarsan (sodium dioxydiamido-arseno-benzene sulphonylate), on the contrary, has a marked action of the hæmoglobin. *In vitro* it causes hæmolytic and reduces oxyhæmoglobin; *in vivo* the reduction is not produced, and the hæmolytic rapidly vanishes. For these reasons there would appear to be reasons against the use of neo-salvarsan in certain cases.—V. **Grégoire**: The telophase and the prophase in somatic caryokinesis.—L. **Bounoure**: Observations on the post-embryonic evolution of *Dytiscus marginalis*.—A. Ch. **Hollande**: The figured bodies of the protoplasm of the encocytes of insects.—P. **Chaussé**: The suspension in air of the virulent particles obtained by liquid pulverisation. A solution of a dyestuff (methyl violet) was sprayed into a room and experiments made on the time of suspension and transportability of the particles. Similar experiments have been made with tuberculous virus.—Albert **Berthelot**: Researches on *Proteus vulgaris* considered as a producer of indol.—Em. **Bourquelot** and J. **Coirre**: Some new data on the reversibility of the ferment action of emulsion.—I. **Stoklasa**, J. **Sebor**, and V. **Zdobnicky**: The synthesis of sugars by radio-active emanations. By the interaction of carbon dioxide and nascent hydrogen in the presence of radium emanations and potassium bicarbonate reducing sugars were obtained.

BOOKS RECEIVED.

Illustrated Catalogue of Physical Apparatus. Pp. 1032+xix. (London: F. E. Becker and Co.)

Three Years in the Libyan Desert. Travels, Discoveries, and Excavations of the Menas Expedition (Kaufmann Expedition). By J. C. E. Falls. Translated by E. Lee. Pp. xii+356+plates. (London: T. F. Unwin.) 15s. net.

Die Synchronien: Studien zu einer Monographie der Gattung. By Dr. G. Tobler. Pp. ii+98+4 plates. (Jena: G. Fischer.) 5 marks.

Die Ontogenie der Primatenzähne: Versuch einer Lösung der Gebissprobleme. By Prof. L. Bolk. Pp. vi+122+2 plates. (Jena: G. Fischer.) 5 marks.

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Chemistry of the Oil Industries. By J. E. Southcombe. Pp. xi+204. (London: Constable and Co., Ltd.) 7s. 6d. net.

A Synopsis of the Elementary Theory of Heat and Heat Engines. By J. Case. Pp. iii+65. (Cambridge: W. Heffer and Sons, Ltd.) 2s. 6d. net.

An Introduction to the Physics and Chemistry of Colloids. By E. Hatschek. Pp. ix+94. (London: J. and A. Churchill.) 2s. 6d. net.

Vicious Circles in Disease. By Dr. J. B. Hurry. Second and enlarged edition. Pp. xiv+280. (London: J. and A. Churchill.) 7s. 6d. net.

On Aristotle as a Biologist, with a Prooemion on Herbert Spencer. By Prof. D'Arcy W. Thompson. Pp. 31. (Oxford: Clarendon Press.) 1s. net.

The Physical and Political School Atlas. By J. G. Bartholomew. Pp. xvi+32. (Oxford University Press.) 1s. net.

Man and His Future. By Lieut.-Col. W. Sedgwick. Part ii. Pp. 217. (London: F. Griffiths.) 6s. net.

The Year-Book of the Scientific and Learned Societies of Great Britain and Ireland. Twenty-ninth Annual Issue. Pp. vii+373. (London: C. Griffin and Co., Ltd.) 7s. 6d.

Union of South Africa. Mines Department. Annual Reports for 1911. Part iii., Geological Survey. Pp. 113+maps+plates. (Pretoria: Government Printing and Stationery Office.) 7s. 6d.

Life in Ancient India in the Age of the Mantras. By P. T. Srinivas Iyengar. Pp. x+140. (Madras: S. Varadachari and Co.)

Anales del Museo Nacional de Historia Natural de Buenos Aires. Tomo xxiii. Pp. 415+plates. (Buenos Aires.)

Records of the Survey of India. Vol. ii., 1910-11. Pp. iii+157+xi maps. (Calcutta: Superintendent Government Printing, India.) 6s.

The Science of Human Behaviour. Biological and Psychological Foundations. By Dr. M. Parmelee. Pp. xvii+443. (London: Macmillan and Co., Ltd.) 8s. 6d. net.

Ausführung qualitativer Analysen. By W. Biltz. Pp. xi+139. (Leipzig: Akademische Verlagsgesellschaft m.b.H.)

Geological Survey of Alabama. Iron Making in Alabama. By W. B. Phillips. Third edition. Pp. 254+xxx plates. (Alabama: University.)

Pharmakognostischer Atlas. By Dr. L. Koch. Zweiter Teil der mikroskopischen Analyse der Drogenpulver. Zweiter Band. 2 Lief. (Leipzig: Gebrüder Borntraeger.) 3.50 marks.

Taschenbuch für Mathematiker und Physiker, 3 Jahrgang, 1913. Edited by F. Auerbach and R. Rothe. Pp. x+463. (Leipzig and Berlin: B. G. Teubner.) 6 marks.

Exercises in Gas Analysis. By Dr. H. Franzen. Translated by Dr. T. Callan. Pp. vii+120. (London: Blackie and Son, Ltd.) 2s. 6d. net.

Vorlesungen über die Theorie der Wärmestrahlung. By Dr. M. Planck. Zweite Auflage. Pp. xii+206. (Leipzig: J. A. Barth.) 7 marks.

Lehrbuch der Thermodynamik. By Drs. J. D. v. d. Waals and P. Kohnstamm. Zweiter Teil. Pp. xvi+646. (Leipzig: J. A. Barth.) 12 marks.

Year-Book of the Royal Society, 1913. Pp. iii+258. (London: Harrison and Sons.) 5s.

Qualitative Determination of Organic Compounds. By J. W. Shepherd. Pp. xvi+348. (London: W. B. Clive.) 6s. 6d.

Wild Flowers as They Grow. By H. E. Corke and G. C. Nuttall. Fifth series. Pp. viii+200+plates. (London: Cassell and Co., Ltd.) 5s. net.

Trees and How They Grow. By G. C. Nuttall and

H. E. Corke. Pp. xi+184+plates. (London: Cassell and Co., Ltd.) 6s. net.

Percentage Compass for Navigators, &c. By J. C. Fergusson. (London: Longmans and Co.) Unmounted, 2s. 6d. net; mounted, 3s. 6d. net.

The Bandöt Printing Telegraph System. By H. W. Penday. Pp. iii+147. (London: Whittaker and Co.) 2s. 6d. net.

A First Book of Electricity and Magnetism. By W. P. Maycock. Fourth edition. Pp. xxii+351. (London: Whittaker and Co.) 2s. 6d. net.

The Design of Alternating Current Machinery. By J. R. Barr and R. D. Archibald. Pp. xvi+496+xvi plates. (London: Whittaker and Co.) 12s. 6d. net.

Dahlias. By G. Gordon. Pp. xi+115+viii coloured plates. (London and Edinburgh: T. C. and E. C. Jack.) 1s. 6d. net.

Practical Bird-keeping. Edited by J. L. Bonhote. Pp. xvi+142+plates. (London: West, Newman and Co.) 5s. net.

Das Relativitätsprinzip. By Dr. M. Laue. Zweite Auflage. Pp. xii+272. (Braunschweig: F. Vieweg und Sohn.) 8 marks.

Reports of the Committee on Electrical Standards appointed by the British Association for the Advancement of Science. Reprinted by Permission of the Council. A Record of the History of "Absolute Units" and of Lord Kelvin's Work in Connection with These. Pp. xxiv+783+10 plates. (Cambridge University Press.) 12s. 6d. net.

Psychology and Industrial Efficiency. By H. Münsterberg. Pp. viii+321. (London: Constable and Co., Ltd.) 6s. net.

DIARY OF SOCIETIES.

THURSDAY, MARCH 6.

ROYAL SOCIETY, at 4.30.—An Automatic Method for the Investigation of the Velocity of Transmission of Excitation in Mimosa: Prof. J. C. Bose.—The Evolution of the Cretaceous Asteroides: W. K. Spencer.—A Preliminary Note on the Fossil Plants of the Mount Potts Beds, New Zealand, collected by Mr. D. G. Lillie, Biologist to Capt. Scott's Antarctic Expedition in the *Terra Nova* in 1911: Dr. E. A. Newell Arber.—(1) Trypanosomes found in the Blood of Wild Animals Living in the Sleeping Sickness Area, Nyasaland; (2) Trypanosome Diseases of Domestic Animals in Nyasaland—II. *Trypanosoma caprae* (Kleinel); (3) Morphology of Various Strains of the Trypanosome causing Disease in Man in Nyasaland. J. The Human Strain: Surg.-Gen. Sir D. Bruce, F.R.S., Majors D. Harvey and A. E. Hamerton, and Lady Bruce. ROYAL INSTITUTION, at 3.—Surface Energy: W. B. Hardy. INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Recent Developments in the Street Lighting of Manchester: S. L. Pearce and H. A. Ratcliff. ROYAL SOCIETY OF ARTS, at 4.30.—Indian Section—The City of Karachi: J. F. Brindley. LINNEAN SOCIETY, at 8.—Discussion: The Development and Inheritance of Sexual Characters—Opener: G. Smith.

FRIDAY, MARCH 7.

ROYAL INSTITUTION, at 9.—Photography of the Paths of Particles Ejected from Atoms: C. T. R. Wilson.

SATURDAY, MARCH 8.

ROYAL INSTITUTION, at 3.—The Properties and Constitution of the Atom: Sir J. J. Thomson, O.M.

MONDAY, MARCH 10.

ROYAL SOCIETY OF ARTS, at 8.—Coal Gas as a Fuel for Domestic Purposes: F. W. Goodenough.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.

TUESDAY, MARCH 11.

ROYAL INSTITUTION, at 3.—The Movements of the Stars: Our Greater System: Prof. H. H. Turner.

MINERALOGICAL SOCIETY, at 5.30.—The Mineral Collection of Thomas Pennant (1726-1798): W. Campbell Smith.—The Minerals and Mineral Localities of Montgomeryshire: Arthur Russell.—A New Stereographic Protractor: Dr. G. F. Herbert Smith.—A (sixth) List of New Mineral Names: L. J. Spencer.

ILLUMINATING ENGINEERING SOCIETY, at 8.—The History of Gas-lighting in this Country: W. J. Liberty.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Notes on City Passenger-Transportation in the United States: G. D. Snyder.

WEDNESDAY, MARCH 12.

ROYAL SOCIETY OF ARTS, at 8.—The Use of White Lead in Painting: Noel Heaton.

INSTITUTE OF CHEMISTRY, at 8.—The Function and Scope of "The Chemist" in a Pharmaceutical Works: C. A. Hill.

AERONAUTICAL SOCIETY, at 8.30.—Some Research: A. P. Thurston.

ROYAL METEOROLOGICAL SOCIETY, at 7.30.—British Weather Forecasts: Past and Present: R. G. K. Lempfert.

THURSDAY, MARCH 13.

ROYAL SOCIETY, at 4.30.—Probable Papers: A Simple Method of Finding the Approximate Period of Stable Systems: A. Mallock.—The Motion of

Electrons in Gases: Prof. J. S. Townsend and H. T. Tizard.—The Self Inductance of Circular Coils of Rectangular Section: Prof. T. R. Lyle.—Ammonium Ferrous Sulphate and its Alkali-Metal Isomorphs: Dr. A. E. H. Tutton.—The Recombination of the Ions produced by Röntgen Rays in Gases and Vapours: H. Thirkill.—Optical Investigation of Solidified Gases. III. The Crystal-properties of Chlorine and Bromide: Dr. W. Wahl.

ROYAL INSTITUTION, at 3.—Surface Energy: W. B. Hardy.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Power Supply on the Rand: A. E. Hadley.

CONCRETE INSTITUTE, at 7.30.—Discussion of Reports of the Reinforced Concrete Practice Standing Committee on: (1) Cracks in Concrete; (2) Surface Treatment of Concrete.

INSTITUTION OF MINING AND METALLURGY, at 8.—Annual General Meeting.

MATHEMATICAL SOCIETY, at 8.—Some Cases of Tidal Motion of Rotating Sheets of Water: J. Proudman.—Indeterminate Equations of the Third and Fourth Degree: L. J. Morrell.

SOCIETY OF DYERS AND COLOURISTS, at 8.—Stripping Agents for Garment Dyers: F. G. Newbury.—A Few Notes on Fur Dyeing: M. C. Lamb.

FRIDAY, MARCH 14.

ROYAL INSTITUTION, at 9.—Great Advance in Crystallography: Dr. A. E. H. Tutton.

INSTITUTION OF MECHANICAL ENGINEERS, at 8.

PHYSICAL SOCIETY (University College, Gower Street), at 5.—Demonstration of Spark Photographs: W. B. Haines.—(1) Some Oscillograms of Condenser Discharges and a Simple Theory of Coupled Circuits; (2) Exhibition of Braun Kathode-Ray Tubes and an Electrostatic Machine for Working them, used as a High-frequency Oscillograph: Prof. J. A. Fleming.—The Stretching and Breaking of Sodium and Potassium: B. B. Baker.—The Latent Heat of Evaporation of Aqueous Salt Solutions: R. G. Lunnon.—Some Flame Spectra: Dr. E. N. da C. Andrade.

ROYAL ASTRONOMICAL SOCIETY, at 5.

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ROYAL INSTITUTION, at 3.—The Properties and Constitution of the Atom: Sir J. J. Thomson, O.M.

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